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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,890	05/25/2006	Sun Yang Kook	1109-003	7135
39600 7590 09/04/2009 SOFFER & HAROUN LLP. 317 MADISON AVENUE, SUITE 910 NEW YORK, NY 10017				
EXAMINER				
TURNER, KATHERINE ANN				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
09/04/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/580,890

**Applicant(s)**

YANG KOOK ET AL.

**Examiner**

Katherine Turner

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-15 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 1-6, drawn to a process for preparing a cathode active material for a lithium secondary battery, having a formula  $\text{Li}_{1+\delta}[\text{Ni}_x\text{Mn}_{x-y/2}\text{Co}_{1-2x-z}\text{M}_y\text{N}_z]\text{O}_{2-a}\text{P}_a$  or  $\text{Li}_{1+\delta}[\text{Ni}_x\text{Mn}_{x+y}\text{Co}_{1-2(x+y)}\text{M}_y]\text{O}_{2-a}\text{P}_a$  ( $\text{M} = \text{Mg}, \text{Zn}, \text{Ca}, \text{Sr}, \text{Cu}, \text{Zr}$ ;  $\text{N} = \text{Fe}, \text{Al}, \text{Ga}, \text{In}, \text{Cr}, \text{Ge}, \text{Sn}$ ;  $\text{P} = \text{F}, \text{S}$ ;  $-1/10 \leq \delta \leq 1/10$ ;  $0 \leq x \leq 1$ ,  $0 \leq y \leq 1/10$ ;  $0 \leq z \leq 1/10$ ;  $0 \leq a \leq 0.3$ ), comprising the steps of: simultaneously, adding a metal precursor, an aqueous ammonia solution and a basic solution to a reactor and mixing and precipitating them to obtain a metal composite hydroxide; and mixing and reacting the metal composite hydroxide with a lithium precursor to obtain a lithium metal composite oxide.

Group II, claims 7-8, drawn to a reactor for preparing a cathode active material for a lithium secondary battery.

Group III, claims 9-15, drawn to a cathode active material for a lithium secondary battery prepared by a process as set forth in claim 1.

2. The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the common technical feature is a cathode active material for a lithium secondary battery having a formula  $\text{Li}_{1+\delta}[\text{Ni}_x\text{Mn}_{x-y/2}\text{Co}_{1-2x-z}\text{M}_y\text{N}_z]\text{O}_{2-a}\text{P}_a$  or  $\text{Li}_{1+\delta}[\text{Ni}_x\text{Mn}_{x+y}\text{Co}_{1-2(x+y)}\text{M}_y]\text{O}_{2-a}\text{P}_a$  ( $\text{M} = \text{Mg}, \text{Zn}, \text{Ca}, \text{Sr}, \text{Cu}, \text{Zr}$ ;  $\text{N} = \text{Fe}, \text{Al}, \text{Ga}, \text{In}, \text{Cr}, \text{Ge}, \text{Sn}$ ;  $\text{P} = \text{F}, \text{S}$ ;  $-1/10 \leq \delta \leq 1/10$ ;  $0 \leq x \leq 1$ ,

$0 \leq y \leq 1/10$ ;  $0 \leq z \leq 1/10$ ;  $0 \leq a \leq 0.3$ ). This cannot be a special technical feature under PCT Rule 13.2 because the element is shown in the prior art.

Ohzuku et al. (US 2003/0054251) teaches a lithium secondary battery (paragraph 83) using a positive electrode active material of  $\text{LiNi}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3}\text{O}_2$  (paragraphs 39, 40, 157, and 158; table 1), which meets Applicant's  $\text{Li}_{1+\delta}[\text{Ni}_x\text{Mn}_{x+y}\text{Co}_{1-2(x+y)}\text{M}_y]\text{O}_{2-a}\text{P}_a$  with  $\delta=0$ ,  $x=1/3$ ,  $y=0$ ,  $z=0$ , and  $a=0$ . Ohzuku et al. teaches equipment (Applicant's reactor) containing a reaction vessel (3) for preparing the positive electrode active material for a lithium secondary battery (figure 2; paragraphs 37 and 140). Ohzuku et al. also teaches the process of preparing the positive electrode active material of  $\text{LiNi}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3}\text{O}_2$  for the lithium secondary battery comprising the steps of simultaneously, adding nickel sulfate, manganese sulfate and cobalt sulfate (Applicant's metal precursors), an aqueous ammonia solution and a NaOH basic solution to a reaction vessel (3) of equipment (reactor) and mixing and precipitating them to obtain a nickel manganese cobalt composite hydroxide as a precursor; and mixing and reacting the nickel manganese cobalt composite hydroxide with lithium hydroxide (Applicant's lithium precursor) to obtain  $\text{LiNi}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3}\text{O}_2$  (Applicant's lithium metal composite oxide) (paragraphs 39, 40, 139-145, and 157-158; table 1).

The process of preparing the cathode active material for the lithium secondary battery is a process of production. If the cathode active material for the lithium secondary battery meets the formula  $\text{Li}_{1+\delta}[\text{Ni}_x\text{Mn}_{x-y/2}\text{Co}_{1-2x-z}\text{M}_y\text{N}_z]\text{O}_{2-a}\text{P}_a$  or  $\text{Li}_{1+\delta}[\text{Ni}_x\text{Mn}_{x+y}\text{Co}_{1-2(x+y)}\text{M}_y]\text{O}_{2-a}\text{P}_a$  ( $\text{M} = \text{Mg}, \text{Zn}, \text{Ca}, \text{Sr}, \text{Cu}, \text{Zr}$ ;  $\text{N} = \text{Fe}, \text{Al}, \text{Ga}, \text{In}, \text{Cr}, \text{Ge}, \text{Sn}$ ;  $\text{P} = \text{F}, \text{S}$ ;  $-1/10 \leq \delta \leq 1/10$ ;  $0 \leq x \leq 1$ ,  $0 \leq y \leq 1/10$ ;  $0 \leq z \leq 1/10$ ;  $0 \leq a \leq 0.3$ ) then the patentability

of the product does not depend on its method, thus only the product links Groups I and II. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113.

3. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

5. The examiner has required restriction between product and process claims.

Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

***Correspondence/Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine Turner whose telephone number is (571)270-5314. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571)272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. T./  
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795